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ABSTRACT

As one of the federally-funded regional educational laboratories, the Appalachia Educational Laboratory (AEL) is committed to assessing the impact of its products and services on a variety of client subgroups. These include educators and administrators at the elementary, secondary, and higher levels. To address the issue of measuring impact, the AEL identified seven impact categories: (1) overall satisfaction; (2) knowledge and skills; (3) information sharing; (4) use in planning; (5) use in implementation; (6) indirect benefits; and (7) secondary clients' use in implementation. Over a 3-year period, the AEL measured impact with a client questionnaire consisting, in the final version, of 5-item subscales that were administered to 672 individuals in primary client subgroups. Scores from this normative group were converted to percentiles, and mean scores were plotted as profiles for subgroups. Results then reflected specific professional roles and the impacts of the AEL on each. An appendix presents the AEL questionnaire development checklist. (Contains 3 tables, 10 figures, and 12 references.) (SLD)

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Impact of Appalachia Educational Laboratory's Products and Services on its Clients in Three Employer Groups and Five Role Groups

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The Appalachia Educational Laboratory (AEL), Inc., works with educators in ongoing R & D-based efforts to improve education and educational opportunity. AEL serves as the Regional Educational Laboratory for Kentucky, Tennessee, Virginia, and West Virginia and operates the Eisenhower Math/Science Consortium for these same four states. It also operates the ERIC Clearinghouse on Rural Education and Small Schools.

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EXECUTIVE SUMMARY

As one of the federally-funded Regional Educational Laboratories, the Appalachia Educational Laboratory (AEL) is committed to assessing the impact of its products and services upon the clients it serves. This task raises two issues: (1) the measurement of impact and (2) the nature and extent of impact among the subgroups of the client population. With regard to the latter, AEL serves a variety of client subgroups, most in education-related professional roles. These subgroups include teachers, principals, central office staff of school systems, state education agency personnel, and higher education professors and administrators.

To address the issue of measuring impact, AEL identified seven impact categories which, to some extent, were an adaptation of the "Continuum of Impact" stages identified by the Northwest Regional Educational Laboratory. The seven categories that are somewhat hierarchial include: Overall Satisfaction, Knowledge and/or Skills, Information Sharing, Use in Planning, Use in Implementation, Indirect Benefits, and Secondary Clients' Use in Implementation. These impact categories seem to provide adequate coverage of the types of impact intended by AEL.

Over a three-year period (1992-1994), AEL measured impact with a 50-item client questionnaire containing seven items for each impact category, plus a veracity-check item. This generated a substantial database. The number of items per impact category was reduced to five, eliminating two items from each category subscale and retaining the five items that maintained the highest internal consistency reliabilities. As a result, the five-item subscales were highly reliable (all r's .92 or greater). A total of 672 individuals had completed data on all subscales and these individuals represented the primary client subgroups served by AEL. The norming process was based

on the data of these 672 questionnaire respondents, and this group of respondents was the normative group.

Scores of the normative group were converted to percentiles, and the mean scores on the subscales were plotted as profiles on the percentile scale. Respondents were identified in terms of their employers and professional roles. The latter gave a more detailed breakdown because it separated teachers, principals, and central office staff in school systems; and professors and administrators in colleges and universities. The former was useful for comparisons involving state education agency personnel. Individual and composite subgroup profiles were generated.

One of the most significant results was the overall magnitude of AEL's impact. Even with those subgroups impacted the least, the impact was substantial.

The comparison of the subgroups of the client population showed substantial differences in the profiles. Educational leaders such as principals, central office staff, and state education agency personnel reported high impact overall and especially on the planning, use in implementation, and secondary clients' use in implementation subscales. Teachers were somewhat low in planning. Higher education personnel tended to have the lowest positions, especially the administrators. These results are a reflection of the specific professional roles and, to some extent, the program emphasis of AEL.

The norming process has proved valuable in determining AEL's impact as it may vary across the client subgroups. The profiles based on the normative data reveal the nature of AEL impact across subgroups. The 35-item questionnaire was found to generate a useful and credible database. The results of the norming process provide information for summative evaluation, as well as data for formative evaluation of AEL's programs, products, and services.

INTRODUCTION

The Appalachia Educational Laboratory (AEL) is a private, nonprofit corporation with headquarters in Charleston, West Virginia. AEL was incorporated in 1966. The Laboratory was designed and established by educators committed to improving education and educational opportunity in its four-state Region--Kentucky, Tennessee, Virginia, and West Virginia. The Lab is governed by a 28-member Board of Directors representing various stakeholders of each state, including state departments of education, higher education institutions, classroom teacher associations, school administrator associations, and the public at large. In fact, 54% of the membership of the AEL Board of Directors consists of representatives of the general public.

AEL's work falls into four categories: (1) the Regional Educational Laboratory (REL), (2) the ERIC Clearinghouse on Rural Education and Small Schools; (3) the Eisenhower Mathematics/Science Consortium; and (4) small contracts with local, state, and regional organizations. The REL, ERIC Clearinghouse, and Math/Science Consortium are funded under separate contracts with the Office of Educational Research and Improvement (OERI), U. S. Department of Education. Twenty RELs were created in 1966 and only six of those original Labs remain in operation. AEL is one of those six original Labs. Thus, longevity is one indicator of AEL's success. But, there must be other indicators of Lab impact in its Region.

How does a federally-funded, multistate, educational research and development organization assess itself and report on its effectiveness? How does an organization, charged with improving education in its multistate Region by linking the world of research with the world of practice, evaluate itself? Over the years, AEL has employed several alternative methods to assess and report on its impact on education in its Region. These methods include constituent surveys, tracer case studies,

retrospectives on important events, intensive case studies, and in-depth interviews with key informants. Each of these evaluation methods yielded credible and important new information; however, there were few common understandings across the evaluation outcomes of the studies using the various methods. There were no common terms to help define and explain the various outcomes of the many evaluation efforts.

AEL's search for assessing and describing the impact of its work led to the problem of categorizing the various types of activity impact and using those categories to assess and report on efforts to itself, to its Board of Directors, to its funding agency, and to others.

AEL Impact Categories

In its contract to operate the REL for the Appalachian Region in the 1991-95 period, AEL is obligated to document, describe, and report on the "forms" of impact it made in the Region. AEL contracted to define the impact of its work and to develop different categories of impact. The purpose for different categories of impact was to provide terms that differentiated the various types of impact made by the individual programs within AEL and, also, the various types of activities program staff conduct to complete their work. Another purpose was to have a means by which the impact data could be aggregated to cross-program and institution levels.

Prior to AEL's work on impact, evaluators at the Northwest Regional Educational Laboratory (NWREL) developed a "Continuum of Impact" to describe their evaluation outcomes. NWREL evaluators described their continuum as consisting of six stages of impact (Gabriel, 1988). Their 1988 self-assessment report (Gabriel, 1989) concluded that their stages of impact were useful both

for describing aspirations of outcomes before data collection and for categorizing the results of data collection.

In 1990, AEL evaluators conducted a two-phase project to validate the NWREL stages of impact with extant interview data from AEL clients and then to produce AEL's definition and categories of impact. In the first phase of the validation project, evaluators at Western Michigan University (WMU), AEL's external evaluator, tested the six NWREL stages of impact on a set of 64 transcribed interviews from key AEL clients. Four WMU evaluators independently read the interview transcripts and assigned the recorded outcome data to one or more of the six stages of impact. With 94% overall intrarater agreement, the WMU staff concluded that the NWREL stages were valid for AEL's client data with two adjustments. The WMU evaluators concluded that "planning" should be redefined and that the NWREL planning definition lends itself to a new stage/category of "information sharing" (Meehan, 1992). The second conclusion from the WMU evaluators was that the separate impact categories do *not* fit neatly into a continuum. The WMU report strongly urged AEL staff not to represent or to present the impact categories as interrelated stages, levels, or steps in a continuum (Seita, Vogel, Sanders, & Lacar, 1990).

In the second phase of the 1990 study, AEL staff moved the impact categories effort forward. AEL evaluators developed a unique definition of impact for its work with clients. Building on the WMU conclusions, AEL staff added a new category on information sharing to the previous list. Next, AEL staff developed new names for some of the NWREL categories. Then, operational definitions for the seven categories were developed to add precision and clarity. Next, these three items (general definition of impact, seven categories of impact, and the operational definition for each category) were submitted for internal review and revision. The completed review and revision

process showed the utility and potential of these essential components of impact for AEL evaluation activities. Table 1 displays the AEL impact definition, category names, and the operational definition for each category (Meehan, 1991, 1992).

Pilot Test of Instrument

In 1991, AEL evaluators completed a pilot test of an instrument based on the seven categories of impact. The purposes of the pilot test were (1) to develop and administer a pilot-test version of an instrument to measure the impact on various client groups in each impact category, (2) to compute and present the results of the reliability estimates for all seven subscales and the total instrument, and (3) to draw conclusions from the pilot test of the instrument to measure institutional impact and to present recommendations for next steps (Meehan & Wiersma, 1993).

The development of the pilot-test instrument followed several stages between March and October 1991. First, draft items were produced individually by the AEL program managers for the seven impact categories, based on one sample item per category written by the AEL internal evaluator. All these draft items were compiled into lists by categories for use in a working meeting. Next, during this working meeting of the program managers, the draft items were read, reviewed, discussed, and debated as to their fitness/utility as pilot-test items. Duplications in the items were eliminated and refinements were made. The group chose the five-option Likert scale response format. The response options ranged from "Not at all" to "Much," "Many," or "Very". Then the internal evaluator summarized the group's work by compiling the 29 agreed-upon refined items into the pilot-test instrument. The number of items per impact category ranged from a low of three to a high of seven. The items were kept in the order of categories from the original AEL information sheet.

Table 1

Appalachia Educational Laboratory
IMPACT - Definitions and Categories

Impact: At AEL, impact is defined as changes in clients' attitudes, knowledge, practices, or policies. Further, at AEL, these impact changes are organized into seven different categories.

Category	Definition
1. Overall Satisfaction	AEL primary clients view the content and presentation of AEL products and/or services as desirable, useful, or effective.
2. Knowledge and/or Skills	AEL primary clients gain new knowledge or skills as a result of AEL products/services or renew previously learned knowledge or skills.
3. Information Sharing	AEL primary clients share the information, materials, and/or skills from their contact with AEL with their colleagues in their own environment or with others in other environments.
4. Use in Planning	AEL primary clients use information, materials, and/or skills gained from AEL in developing plans that include, for example, program design, goals, objectives, activities, timelines, outcomes, and evaluation.
5. Use in Implementation	AEL primary clients change their job-related practices/behaviors in their own environments as a result of the products or services delivered by AEL.
6. Indirect Benefits	AEL primary clients report unanticipated or serendipitous outcomes related to the AEL products or services.
7. Secondary Clients' Use in Implementation	AEL secondary clients (the clients of AEL's primary clients) change their attitudes, knowledge, behaviors, or practices in their own environments based on the products or services delivered by AEL.

The sample for the pilot-test version of the impact instrument was determined by AEL program managers because it was one part of a dual-purpose annual survey for which the first section was program-specific. Thus, AEL program managers decided what client group was to receive their part 1 survey and these groups then made up the sample for part 2, the impact instrument. The total number of AEL clients who received the pilot-test impact instrument in 1991 was 417. There were 261 instruments returned with usable data. Of those, 253 answered the three demographic questions. The number of respondents per state was Kentucky, N = 61 (24.1%); Tennessee, N = 56 (22.1%); Virginia, N = 76 (30.0%); and West Virginia, N = 53 (20.9%). Seven respondents checked "Other." Nearly 80% of the respondents were in just two of the seven employer categories: local education agency (43.1%) and institutions of higher education (36.0%). Regarding professional role, 20.9% were teachers, 17.8% were higher education professors, 16.2% were higher education administrators, 13.0% were central office staff, and 9.1% were principals or assistant principals. The four remaining categories had less than 4% each in them.

The internal consistency reliability of the pilot-test instrument was measured by Cronbach's Alpha. Of the 261 completed instruments with some usable data, there were 151 with responses to the full set of 29 items. The Alpha reliability coefficient for the full instrument was a very high .97. The Alphas for the seven different impact categories ranged from a low of .71 for one scale (of four items) up to a high .94 for another scale (of seven items). Three of the impact category Alphas were in the .70s, one was in the .80s, and three were in the .90s. Predictably, the Alphas increased as the number of items in the category subscale increased. (Adams, Barley, Gullickson, Keller, & Wiersma, 1992).

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Due to the different number of items for each of the seven categories, item means and standard deviations were used for interpretation purposes. The possible responses were from 1 to 5 (low to high). The seven subscales for the categories produced item means that ranged from 3.37 for category #7 to a high of 4.30 for category #1. The most obvious and interesting trend in the item means by subscales was their small but steady decline from the first category (Overall Satisfaction) to the seventh category (Secondary Clients' Use in Implementation). Yet, even with this decline, all the item means were in the positive portion of the scale. The decline in subscale means is understandable. Items in the first three impact categories are directly controllable by the individual respondent, while items in the last four categories deal with the respondent interacting with other individuals and much less direct control.

Development of the Field-Test Instrument

One of the recommendations from the pilot test of the 29-item version of the impact instrument was to expand the number of items for each category. A second recommendation was to equalize the number of items for each category in the instrument. The purposes of the first recommendation were to increase the number of viable items available for each category and to raise the reliability estimates for some subscales. The purpose of the second recommendation was to provide a common scale for the scores of the seven subscales, thus enhancing direct comparisons.

Because one category with seven items produced an Alpha reliability estimate of .94, that number of items was selected as reasonable for the six other categories. The AEL internal evaluator wrote 20 new items for the field-test version so that each category had seven items. The field-test instrument had 49 items at this stage (7 x 7 = 49), so it was decided to add one more item to have

the round number of 50 items total. Given this opportunity to add one additional item into the field-test impact instrument, a veracity-check item was written. That is, one item with no mention of AEL in it was added as the 50th item to assess if respondents really did read the stem statements.

The 20 new items were reviewed by several AEL program managers for content. The veracity-check item was not part of this review process. Minor word changes in a few items were suggested by the AEL program managers, and these improvements were made. After the 21 new items (including the veracity-check item) were finalized, they were assembled into the field-test version of the impact instrument. As in the pilot test, the items in the seven categories were assembled in the order of the categories on the original AEL information sheet, category #1 through category #7. That is, the 50 items in the field-test impact instrument were <u>not</u> put in random order; they were in the order of the seven impact categories. The three demographic questions were retained from the pilot-test version. The development and two administrations of the 50-item field test impact instrument was reported by Meehan and Wiersma (1994).

Purpose and Objectives of This Study

The major purpose of this study was to combine the data sets resulting from three annual administrations of the AEL impact instrument to a sample of its clients, to establish the norms for the combined database, then to profile and describe the impact of AEL on its clients in three major employer groups and five major role groups.

The objectives of this study were (1) to combine the data sets from three annual administrations of the AEL impact instrument, (2) to reduce the length of the instrument from 50 items to 35 items and assess the change in the scale reliabilities, (3) to establish the norms for the seven subscales and

the total instrument based on those clients who responded to all 35 items, (4) to graph the impact profiles for clients by three major employer groups and five major role groups, and (5) to analyze the resulting impact graphs for AEL clients and draw conclusions from those analyses.

INSTRUMENT ADMINISTRATION AND REDUCTION

This section discusses the three samples for the AEL impact instruments, its administration procedures, the reduction of the instrument from 50 to 35 items, and the Alpha reliabilities for the subscales and total instrument.

Three Annual Samples

Field test #1. The first field test of the expanded impact instrument was completed in 1992. There were 365 impact instruments mailed and 243 usable responses received. As expected, not all the respondents answered all 50 items and the three demographic questions. West Virginia had the largest number of respondents (34.9%), while Tennessee had the smallest number (10.7%). Kentucky and Virginia were only one respondent apart; each had a little more than 25% of the total. A few respondents (N = 7) marked "Other" or did not respond to this item.

In terms of the employer of the respondent, the largest number marked (N = 129) was the local education agency at 53.1%. The next most frequently marked employer was the state education agency at 14.4%, followed by institution of higher education at 8.2%. Community organization was the next category at 5.8%. Policy-oriented organization and professional education association employer categories each had less than 3% of the respondents, while two national/federal government categories yielded no respondents. Interestingly, 13.2% marked the "Other" category or did not respond to the question.

Regarding the professional role marked by the respondents, the largest number (N = 92 or 40%) indicated the teacher category. The second most marked role group was central office staff at 11.1%, followed by principal/assistant principal at 6.6%. Eight different role groups each had less

than 5% of the respondents marking them. They included higher education professor (4.9%), community organization (4.5%), state board of education and key staff (1.2%), higher education administrator (3.7%), state legislator or staff (1.6%), chief state school officer or staff (1.2%), governor and/or key staff (0.8%), and local board of education member (0.4%). Apparently the 11 role groups were not enough, as over one fifth (20.5%) of the respondents marked the "Other" category. Finally, 2.1% did not respond to this question (Wiersma, 1993; Meehan & Wiersma, 1994).

Field test #2. The second field test of the 50-item impact instrument was completed in 1993. Of the 447 AEL clients sampled, 271 usable instruments were returned and 8 others were not delivered or unanswered for other reasons. The largest number of respondents (32.5%) were employed in Virginia and the smallest number (15.1%) were employed in Kentucky. In the middle, 26.6% were employed in West Virginia and 21.8% were employed in Tennessee.

Over two thirds of the respondents (71.6%) were employed by local education agencies. The second largest number of respondents (10.7%) were employed by institutions of higher education. After these two types of employers, the percentage of respondents dropped markedly with no employer having more than 6%. Of those, though, community organizations had the most respondents. Thirteen respondents marked "Other," while 10 did not respond to this question, for a combined 8.5%.

Of the respondents, 46.1% said they were teachers, the professional role marked most frequently. The second most frequently checked role was principal or assistant principal (39 for 14.4%), followed by 28 central office staff (10.3%). Those employed by institutions of higher education were split almost evenly between professors and administrators, 15% and 13% respectively.

After the local education agency and institution of higher education employer-type professional role categories, the role group responses dropped off markedly with less than 2% for any specific role. As was the case in both prior administrations of the impact instrument, the professional role categories provided in the list seemed not to be applicable for many of the respondents. In this field test, 35 respondents (12.9%) marked the "Other" category or did not respond to the question (Wiersma, 1994; Meehan & Wiersma, 1994).

Field test #3. The third field test of the 50-item impact instrument was completed in 1994. This was the largest sample of AEL clients to receive the impact instrument. The 1994 sample consisted of 618 AEL clients distributed across eight AEL programs, representing 10 samples or populations selected by the program managers. A subset of 28 instruments, letters, or followup postcards were returned as undeliverable or unable to respond for some legitimate reason. This reduced the effective mailing to 590 AEL clients. There were 338 usable impact instruments returned for an effective response rate of 57.3%.

As usual, not all respondents answered all the impact items nor all of the demographic items. A total of 308 indicated the state in which they work. The respondents were rather evenly distributed across AEL's four states: Virginia had 71 (23.1%), Tennessee had 70 (22.7%), Kentucky had 66 (21.4%), and West Virginia had 65 (21.1%). Thirty-six respondents (11.7%) checked the "Other" category, indicating they worked in states not in AEL's four-state Region. This was due in part to one of the programs conducting workshops outside of the Region.

Of the 306 respondents who responded to the employer category, 155 (50.6%) marked the local education agency. The next highest employer category marked was institution of higher education with 30.1%. With these two employers having 80% of the respondents, the remaining

employer categories had small numbers and percentages. Of those, 4.9% checked the "Other" category and 4.8% marked the state education agency. The professional education association employer category was marked by 3.3% of the 1994 respondents and the remaining categories all had smaller percentages of respondents.

Regarding the role group checked by respondents, the largest percentage was teachers at 34.9%. This is consistent with previous administrations. More respondents were employed in the central office staff (25 for 8.1%) in a local education agency than as principals or assistant principals (17 for 5.5%). Fifty-two respondents (16.9%) were college or university administrators and 36 (11.7%) were employed as college or university professors. Following these professional roles, the percentages for the remaining roles were small at less than 3% for any role (Wiersma, 1995).

Instrument Administration

The administration of the expanded impact instrument was similar for the three field tests (1992, 1993, and 1994); therefore, a generic explanation of the process is presented below.

The 50-item field-test instrument to measure the impact of an R & D organization was administered as part of the annual survey of AEL clients. The first part, called Section 1 in the completed survey, was designed by program managers specifically for selected subgroups of their clients. These subgroups were selected because they had received specific products or services from the particular program during the year or prior years. These subgroups of clients were selected mainly as purposeful samples but, in several cases, were drawn at random.

The field-test impact instrument was the second part of the annual client survey. These second sections were exactly alike for all AEL clients, except they were printed on different colored

paper for easy identification purposes. Section 2 of the annual client survey was titled "General Perceptions of AEL Services and Materials" and it contained a proper copyright notice.

AEL and WMU staff collaborated on the administration of the client surveys, including the impact instrument (Section 2). Cover letters were prepared at WMU, on The Evaluation Center letterhead, and then were reviewed and approved by AEL program managers. All of the mailings of the surveys originated at AEL, but all completed surveys were sent directly to WMU for analysis.

There were four different waves of mailings for the client survey, including the field-test impact instrument. Initial mailings of the full survey packages were completed in the third week of October. Each survey package included the cover letter from WMU evaluators; the survey consisting of two sections; and a postage-paid, self-addressed return envelope for the completed survey. A code number was written on each instrument for tracking purposes. WMU staff checked off each returned survey as it was received at their offices. Then, WMU staff faxed a list of nonrespondents to AEL staff in early November. AEL staff prepared and mailed a first followup postcard reminder to those nonrespondents. WMU staff continuously tracked the returned surveys and faxed a second list of nonrespondents to AEL staff in early December. At this time, a second complete survey packet was sent to all remaining nonrespondents with a letter from WMU urging completion and return of the instrument. The last mailing consisted of a final appeal to nonrespondents in the form of a message typed on a bright orange label that was affixed to a postcard. Receipt of the surveys was closed immediately after the holiday vacation period at the WMU campus. In 1994, a prenotification letter was sent as the first mailing in an attempt to increase the response rate. However, this step was judged to be ineffective since the response rate did not improve.

The return rates declined slightly over the three field-test years. In 1992, 365 instruments were mailed to the sample and 243 were returned by the mid-December analysis cutoff date for a 66.9% return rate. However, a group of 39 instruments was received later and added into the total database. A substudy showed no significant difference in the responses from the "late returners" when compared to those of the "on time" returners. This made the return rate of usable instruments in 1992 of 77.5%. In 1993, 447 instruments were mailed initially and 271 usable responses were received for a return rate of 60.6%. However, eight surveys were returned as undeliverable or not able to be completed for other reasons. So, the response rate of usable instruments moved up to 61.7%. For 1994, the initial mailing consisted of 618 impact instruments. However, a subset of 28 was returned as undeliverable or with notes explaining why the respondent could not complete the instrument, such as no longer employed in that professional role. There were 338 usable instruments for a return rate of 57.3%. This figure was close to the 1993 return rate, but almost 10 percentage points less than the initial return rate for 1992.

Instrument Reduction

With three annual administrations of the AEL impact instrument completed, there was a sufficient number of completed versions to aggregate them into one data set and assess the impact of reducing the 50 items to a more convenient number. The purpose of reducing the number of items would be to shorten the amount of time required for respondents to complete the instrument, possibly improving the return rate. Of course, the goal at this stage was to reduce the number of items per subscale, only if the Alpha reliabilities were not adversely affected (i.e., substantially lowered). Another reason for assessing the process of reducing the impact instrument in 1995 was that

sufficiently diverse types of AEL clients had completed the instrument over the three years to warrant further investigation of the instrument reliabilities. That is, it took three years to sample all the various types of AEL clients from the nine different programs. There were empty cells or low numbers in some of the employer and/or role group cells for the first two years. The large sample in the 1994 administration rounded out most of the categories that had low numbers. One exception, though, was the "I attended as a parent" category in both the employer and role groups, which was a new addition in 1994 based on input from AEL program managers.

After combining the completed AEL impact instruments from the 1992, 1993, and 1994 administrations, the database contained 822 cases, all of which had completed a minimum of 26 of the 50 instrument items. Since the response scale for all items was a low of 1 (Not at all) to a high of 5 (Much, Very, or Many), the decision was then made to include only those respondents who had actually completed every item in the instrument. The position taken was that omitting an item would yield a 0 value for that item, but a 0 was not one of the actual response options. Thus, only those respondents who chose one of the actual response options should be included in the instrument reduction phase. Estimating reliability using the Cronbach Alpha coefficient also requires complete data.

When those respondents who omitted one or more items of the instrument were dropped from the database, the number remaining was 672. Therefore, the database for reducing the instrument consisted of 672 AEL clients who had completed all impact items in 1992, 1993, or 1994. There were no duplicate names within any one year's administration because a specific step was taken in assembling the mailing list each year to eliminate possible duplicates.

Actual reduction of the 50 items (including one veracity-check item) to 35 items was rather straightforward. First, the Alpha reliability runs were made for the seven subscales and for the total instrument. As part of the regular SPSS-PC+ computer printouts for the Alpha reliabilities, the value of Alpha for the subscale or total score if every individual item was omitted is provided. Thus, it is possible to assess the contribution of each item to the total Alpha reliability. The goal of reducing each subscale by two items was selected. Reducing each subscale by two items would yield a total instrument of 35 items (7 x 5 = 35), since the veracity-check item also was eliminated.

The second step in reducing the impact instrument was to inspect each item's contribution to the Alpha reliability coefficient for each category and to pick the two items that affected the Alpha value the least when omitted. In most cases, the values were very close in terms of what contributions they made to Alpha. A single exception was in the knowledge and skills subscale where one of the two lowest contributors to the subscale Alpha had the word "knowledge" in the stem. Since that was the name of the subscale, that item was retained and another item (very close in its contribution to Alpha) was omitted. The judgment was made by the two authors and jointly agreed upon.

The third step in the instrument reduction phase was to recompute the new Alpha reliabilites for each of the shortened subscales and the total impact instrument. Table 2 presents the results of this recomputation of the Alpha reliabilities for the seven 5-item subscales and the total instrument. For the reader's convenience, the Alpha reliabilities for each of the prior three years' field tests are provided for comparison purposes. Inspection of Table 2 showed that the effects on the Alphas of reducing the subscales were very minor. The largest drop in the Alpha value from 1994 (the year

Table 2

Impact Instrument Alpha Reliabilities for
Three Field Tests and Reduced Version

Subscale/Scale Name and Symbol	Field Test Version				Reduced Version	
	No. of Items	Alpha Reliability Coefficient			No. of Items	Alpha Coefficient
		Field Test #1	Field Test #2	Field Test #3		For This Study
1. Overall Satisfaction - S_1	7	.95	.94	.94	5	.93
2. Knowledge and/or Skills - S_2	7	.95	.95	.96	5	.94
3. Information Sharing - S_3	7	.94	.94	.94	5	.92
4. Planning - S_4	7	.96	.95	.95	5	.94
5. Use in Implementation - S_5	7	.98	.96	.97	5	.96
6. Indirect Benefits - S_6	7	.94	.94	.95	5	.94
7. Secondary Clients' Use in Implementation - S_7	7	.98	.95	.96	5	.96
Total Impact Instrument	49[a]	.99	.98	.99	35	.98

[a] Does not include the single veracity-check item.

with the largest sample) was .02, and one subscale (#7) did not drop at all. The Alpha reliability of the total impact instrument dropped from .99 to .98--still very high. Therefore, reducing the AEL impact instrument from 50 items to 35 items yielded virtually no negative results on the Alpha reliabilities and, on the positive side, produced an instrument that was more convenient for respondents.

NORMING PROCESS

The data used for the norming process consisted of the responses to the 35 items, five per subscale, that remained after the 50-item questionnaire was reduced. Over the three years of the survey, there were 672 individuals who had responded to all items of the survey. As with any survey, respondents will omit items for various reasons. An initial count of 822 individuals had responded to at least 26 of the original 50 items, but 150 of these had omitted at least one of the 35 items to be used for norming, thus reducing the norm group to 672. A check of the percentage distribution of the five role groups of interest in the two groups showed the following percentages:

	672 cases group	**822 cases group**
Teacher	40.0	40.0
Principal/Assistant Principal	9.2	8.6
Central Office Staff	10.7	9.9
Higher Education--Professor	10.1	9.7
Higher Education--Admiminstrator	7.0	7.9

These percentages within a category across the two groups were very close; the difference between any corresponding percentages did not exceed 1%. So the omission of items was not related to the role of the respondent.

Description of the Norm Group

The 672 individuals in the normative group were employed by a variety of agencies and organizations and, of course, most of these were involved in education. The distribution of employers follows.

Local education agency	404	60.1%
State education agency	49	7.3
Higher education institution	114	17.0
Policy-oriented agency	12	1.8
Professional education agency	16	2.4
OERI, Lab, or R&D agency	1	.1
U.S. Department of Education	1	.1
Attended as a parent	2	.3
Community organization	33	4.9
Other	36	5.4

Four respondents did not indicate an employer and, if employed, they most likely fit the "Other" category. As expected, the concentration of respondents, over 84%, were in local education agencies, colleges and universities, and state education agencies.

Five subgroups with substantial numbers were identified using the professional role of the respondent. These five role groups and their numbers are

Teacher	269
Principal/Assistant Principal	62
Central Office Staff	72
Higher Education--Professor	68
Higher Education--Administrator	47

These subgroups were of primary interest for comparison to the normative group. Those employed by the state education agencies viewed themselves as having a variety of roles and apparently many of these individuals selected "Other" for their roles.

The respondents were quite evenly distributed across the four states served by AEL. West Virginia had the largest number with 189 or about 28%, and Tennessee had the smallest number with 134 or about 20%. Thirty respondents lived and/or worked in other states, primarily respondents of workshops that had been conducted in Georgia and Indiana.

Norm Group Statistics

The focus of interest was on the seven impact category subscales identified earlier--S_1, measuring overall satisfaction, through S_7, secondary clients' use. The means, standard deviations, and reliability coefficients for the scales are provided in Table 3 for all 672 respondents who became the "norm group." The mean for the total scale, all 35 items, was 123.56, and the total score distribution had a standard deviation of 33.65. The Alpha internal consistency reliability of the total scale was .98.

Scores on each of the subscales could range from a minimum of 5 to a maximum of 25. The distribution for each subscale was converted to percentiles and these percentiles became the basis for comparisons among the various subgroups of the norm group. The total score distribution also was converted to percentiles, although it was not used in any of the comparisons reported here.

Positioning of the Norm Group on the Impact Category Subscales

Although the primary interest was on comparisons of subgroups in the norm group, the positions of the entire group on the scales of measurement also are of interest because such positions reflect the perceived impact of AEL's products and services. All of the items were 5-point Likert scales, on which 1 indicated "Not at all" and 5 indicated "Much, Very, or Many." The midpoint, 3, was defined as "Somewhat." Thus the minimum score for a subscale was 5 and the maximum score was 25. The subscale means, generally, followed a decreasing pattern as the type of impact became more specific and, in the case of S_7, one step removed from the respondent. The means for S_4 (use in planning) and S_5 (use in implementation) did not follow the decreasing pattern. The means had

Table 3

Means and Standard Deviations for the Norm Group
by Impact Category Subscale

Subscale Symbol/ Name	Mean[a]	Standard Deviation
S_1 - Overall Satisfaction	20.74	4.10
S_2 - Knowledge and/or Skills	19.69	4.78
S_3 - Information Sharing	17.47	5.60
S_4 - Planning	16.80	5.73
S_5 - Use in Implementation	16.99	5.69
S_6 - Indirect Benefits	16.64	5.71
S_7 - Secondary Clients' Use in Implementation	15.23	6.05

[a]Possible scores were from 5 to 25.

only a .19 difference with S_5 having the greater mean. Standard deviations for the subscale distributions were quite homogenous. As the mean decreased, there was a tendency for the standard deviation to increase, undoubtedly due in part to means positioned closer to the center of the measurement scale, providing more opportunity for positioning farther from the mean on the high end of the subscale.

A total subscale score around 20 indicates an average item score around 4, midway between "Somewhat" and "Much, Very, or Many." Even a total subscale score of 15 indicates an overall perception of "Somewhat" impact. So, it can be concluded that AEL's products and services had substantial impact as perceived by the norm group. Overall satisfaction was the highest, as might be expected. But even for secondary clients' use, there was some impact.

EMPLOYER AND PROFESSIONAL ROLE GROUPS RESULTS

The procedure for comparing any two or more subgroups of the norm group was to develop profiles of the seven impact category means as to their positions in the percentile distribution of the norm group. The focus of interest was on the relative positions. These are presented below for each subgroup of interest, then a composite profile is given which includes the means of all subgroups being compared.

The initial comparison below is for individuals employed by three different agencies or institutions: the local education agency, the state education agency, and an institution of higher education. The second comparison provides a more detailed breakdown of those employed by local education agencies and colleges/universities. For the former, the respondents were divided into teachers, principals/assistant principals, and central office staff. For the latter, the division was between professors and administrators (deans, department chairpersons, etc.). The professional role provided a "finer cut" of the respondents in local education agencies and colleges/universities than did the type of employer. But the first comparison was made to include those employed by state education agencies, a substantial portion of those serviced by AEL.

The profiles for those employed by local education agencies, state education agencies, and institutions of higher education are given respectively in Figures 1, 2, and 3; Figure 4 contains the composite for these three subgroups. The profiles for those employed by local education agencies and state education agencies are in a relatively tight band of about 10 percentile points for most subscales, and for the final three subscales come quite close together. The widest difference is in S_4 (planning) for which state education agencies had the highest impact. This result was reasonable in

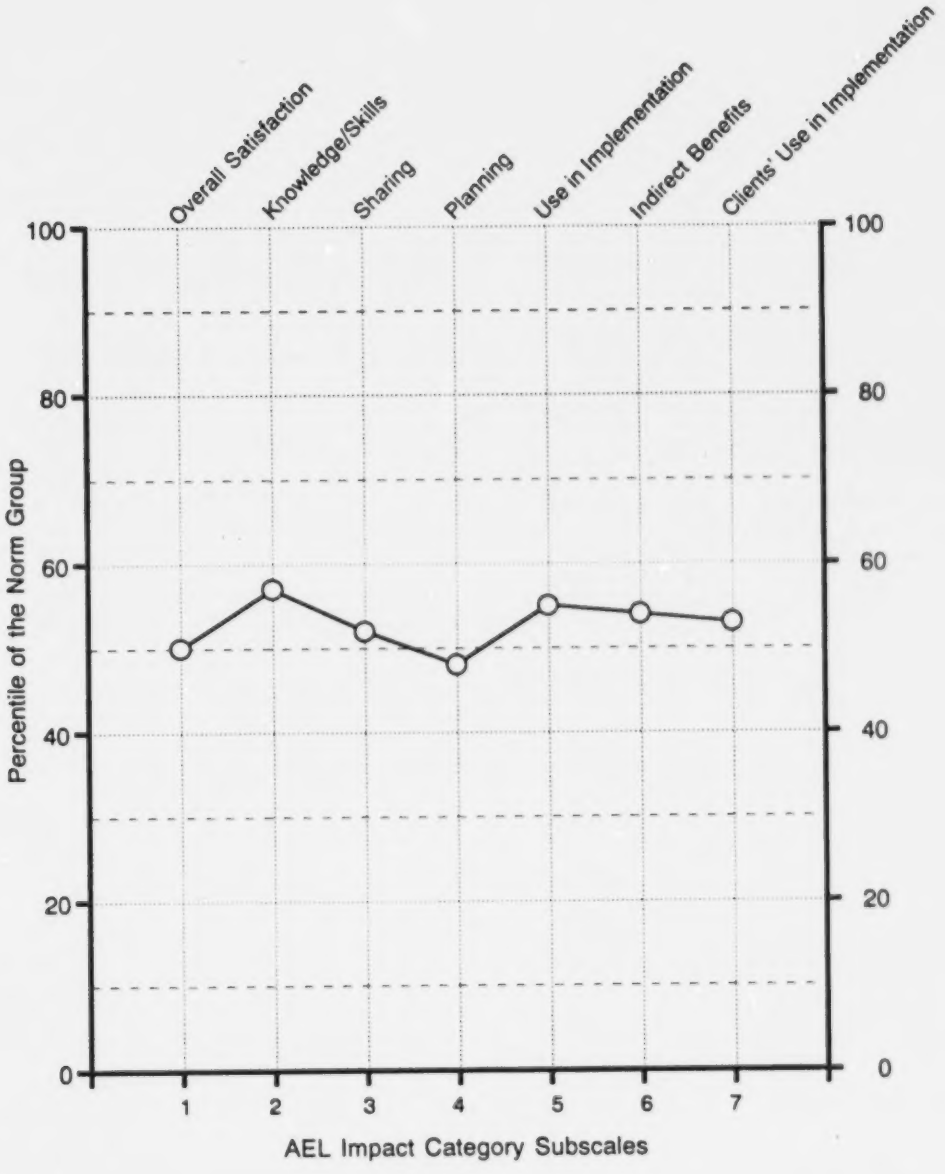

Figure 1. Profile of Means Across the AEL Impact Category Subscales for Those Clients Employed by Local Education Agencies

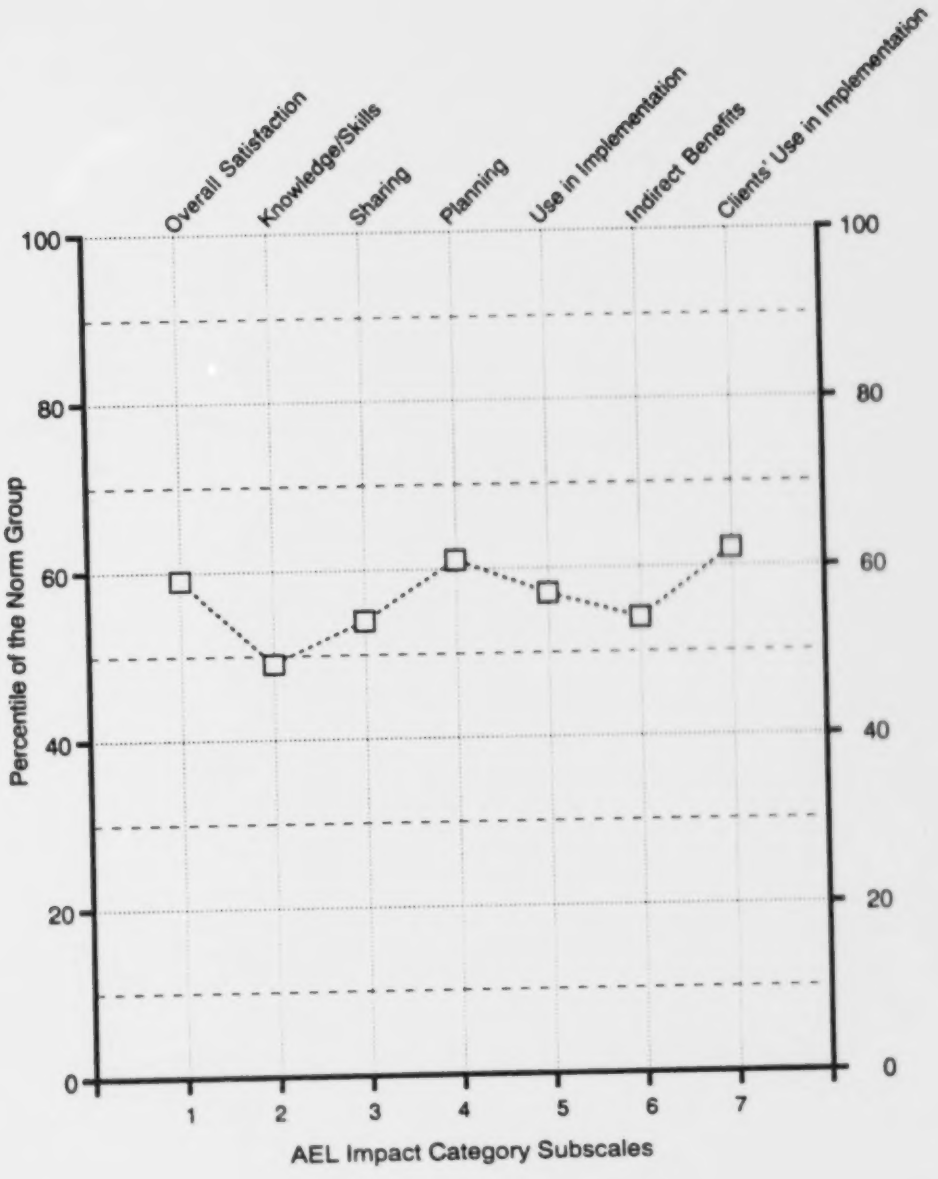

Figure 2. Profile of Means Across the AEL Impact Category Subscales for Those Clients Employed by State Education Agencies

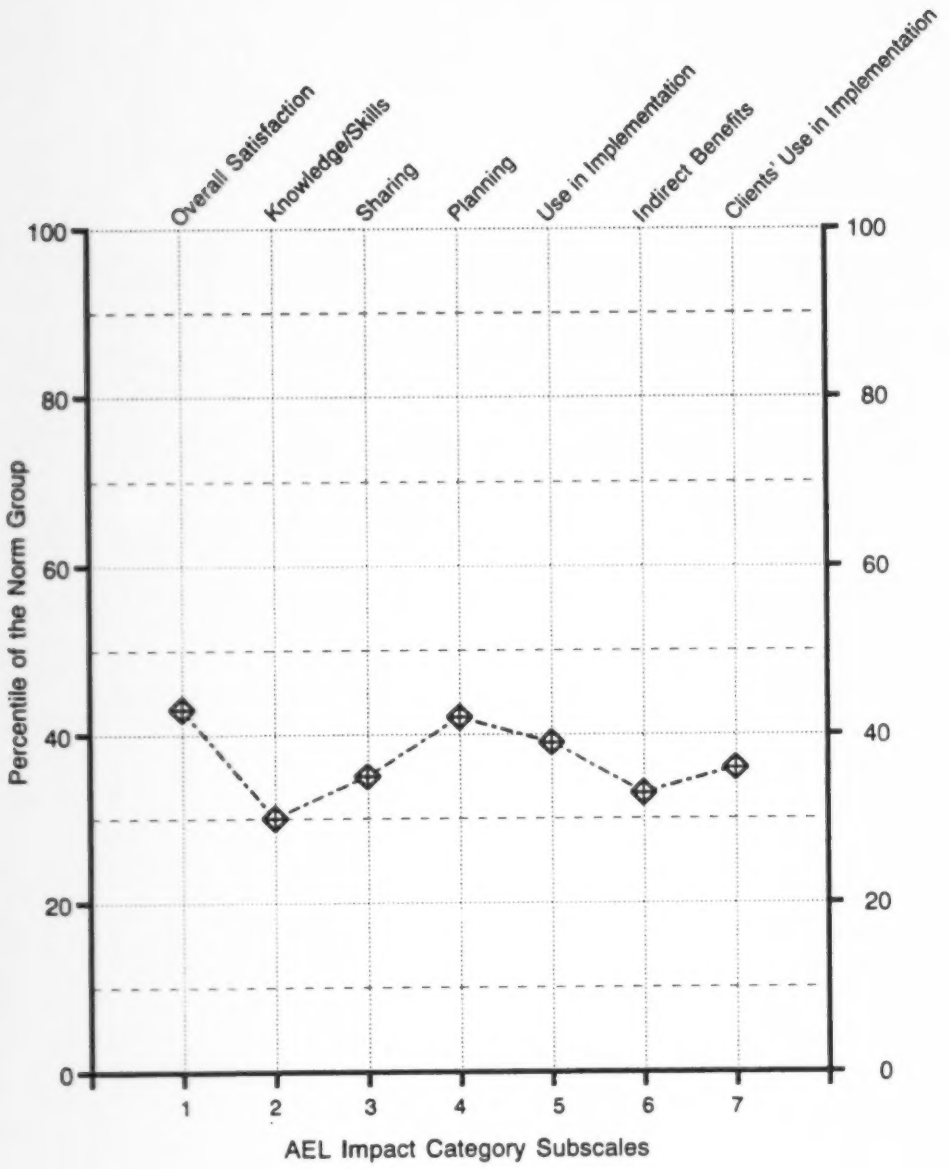

Figure 3. Profile of Means Across the AEL Impact Category Subscales for Those Clients Employed by Institutions of Higher Education

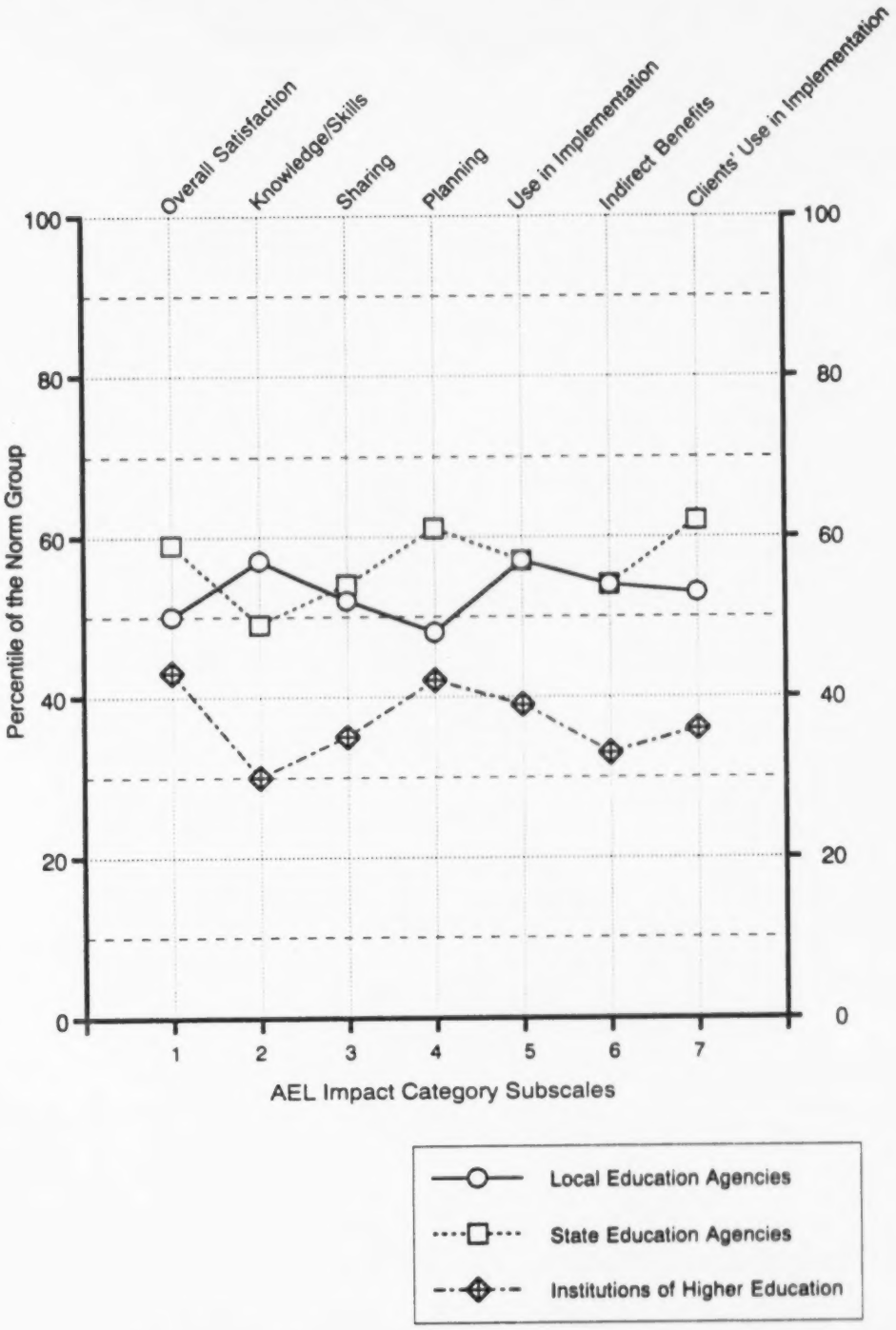

Figure 4. Composite Profile of Means Across the AEL Impact Category Subscales for Three Employer Subgroups

that the local education agency subgroup had a majority of teachers who, as will be seen in the role profiles, positioned low on planning. State education agency employees probably are involved in more planning, at least at a more formal level, than teachers.

Those in colleges and universities consistently positioned lowest in the profiles of these three subgroups. Overall satisfaction was highest along with planning impact, but even these were five percentiles below the lowest mean of the other two subgroups. These results show AEL's consistently greater perceived impact with those in local education agencies and state education agencies than those in colleges and universities. This is not to say that the latter are not impacted by AEL's products and services. The lowest mean on a subscale for those in colleges and universities was 13.4, still in the "Somewhat" impact range, and this mean was on S_7. Except for the teacher education students, it is not apparent who are perceived by professors and college administrators as secondary clients receiving AEL products and services. There may be some higher education individuals working with educators in the elementary and secondary schools that view such educators as being impacted by AEL through the universities and colleges, but such cooperative activity is not extensive, at least not in a formal manner.

The identification of subgroups by professional role provides more detail for those working in local education agencies and institutions of higher education. The majority of those in local education agencies were teachers, with over 66%, but there were substantial numbers of principals/assistant principals and central office staff as well. The higher education respondents were split about 60-40, with the greater percentage being professors. The profiles for these five professional role subgroups are given in Figures 5-9, with the composite profile in Figure 10.

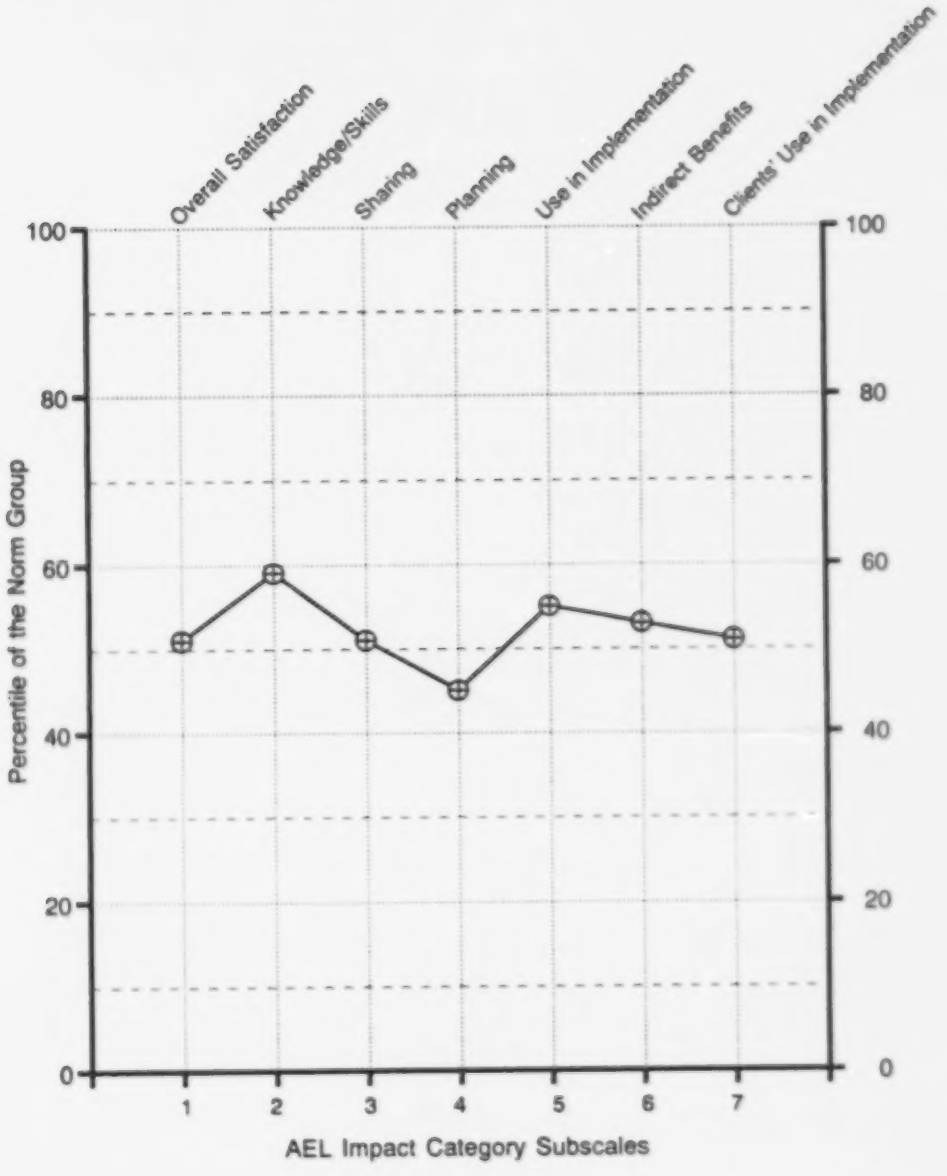

Figure 5. Profile of Means Across the AEL Impact Category Subscales for Teachers

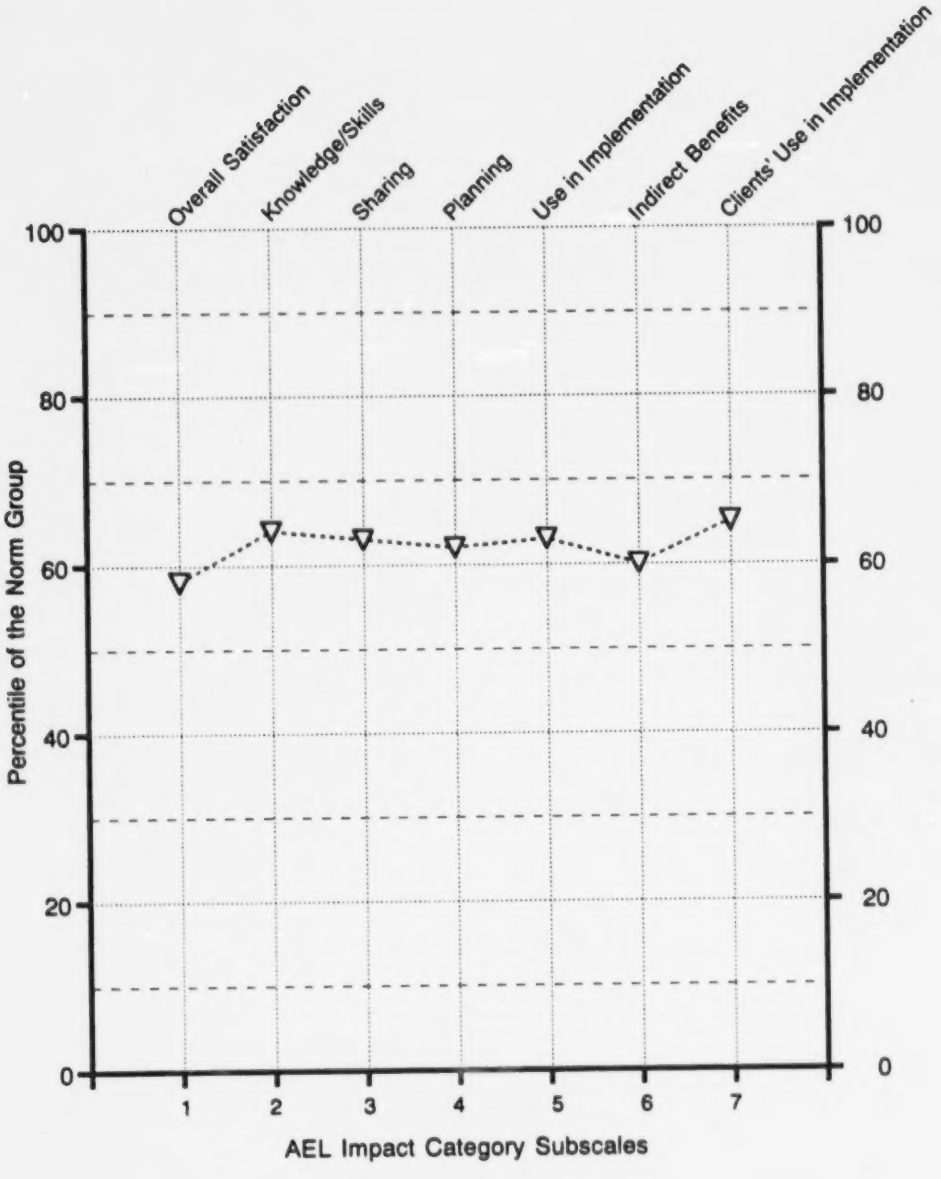

Figure 6. Profile of Means Across the AEL Impact Category Subscales for Principals/Assistant Principals

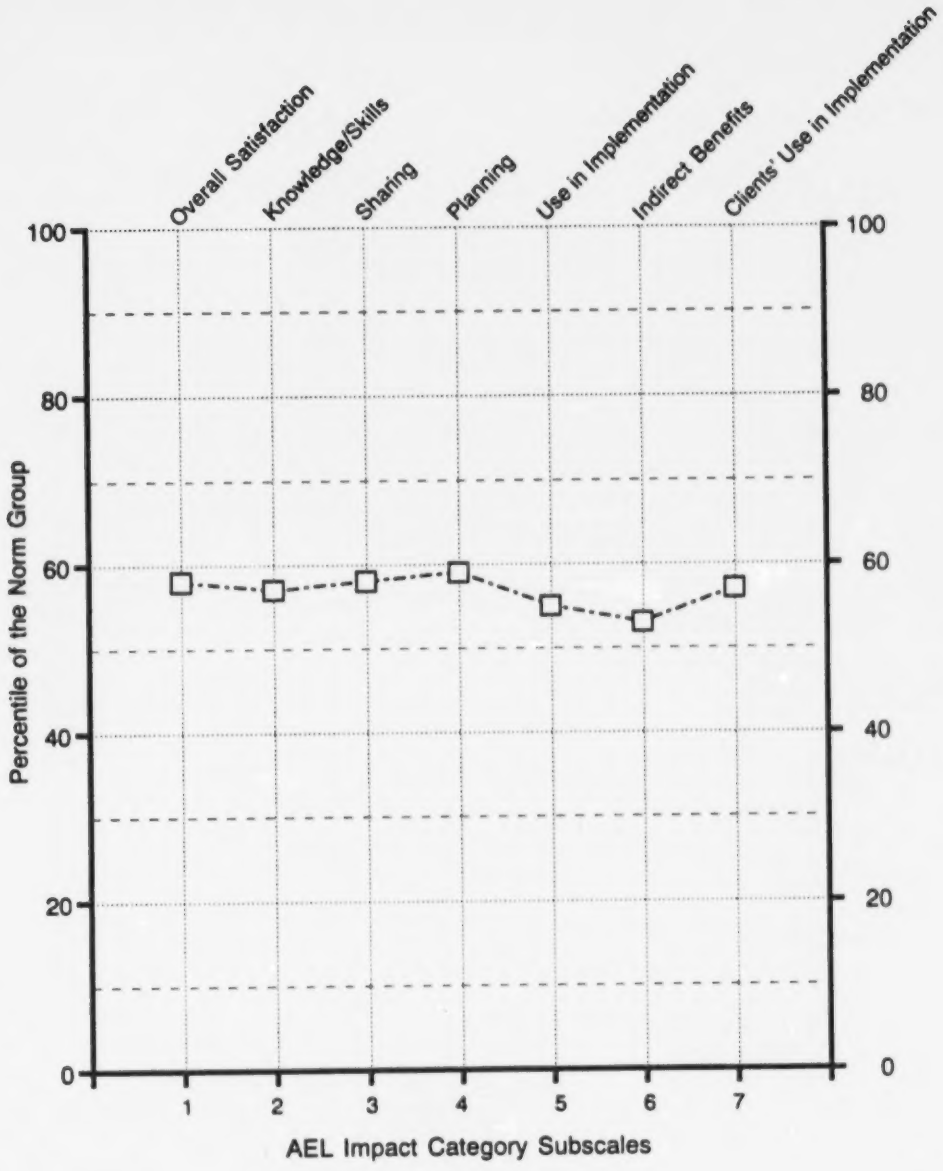

Figure 7. Profile of Means Across the AEL Impact Category Subscales for LEA Central Office Staff

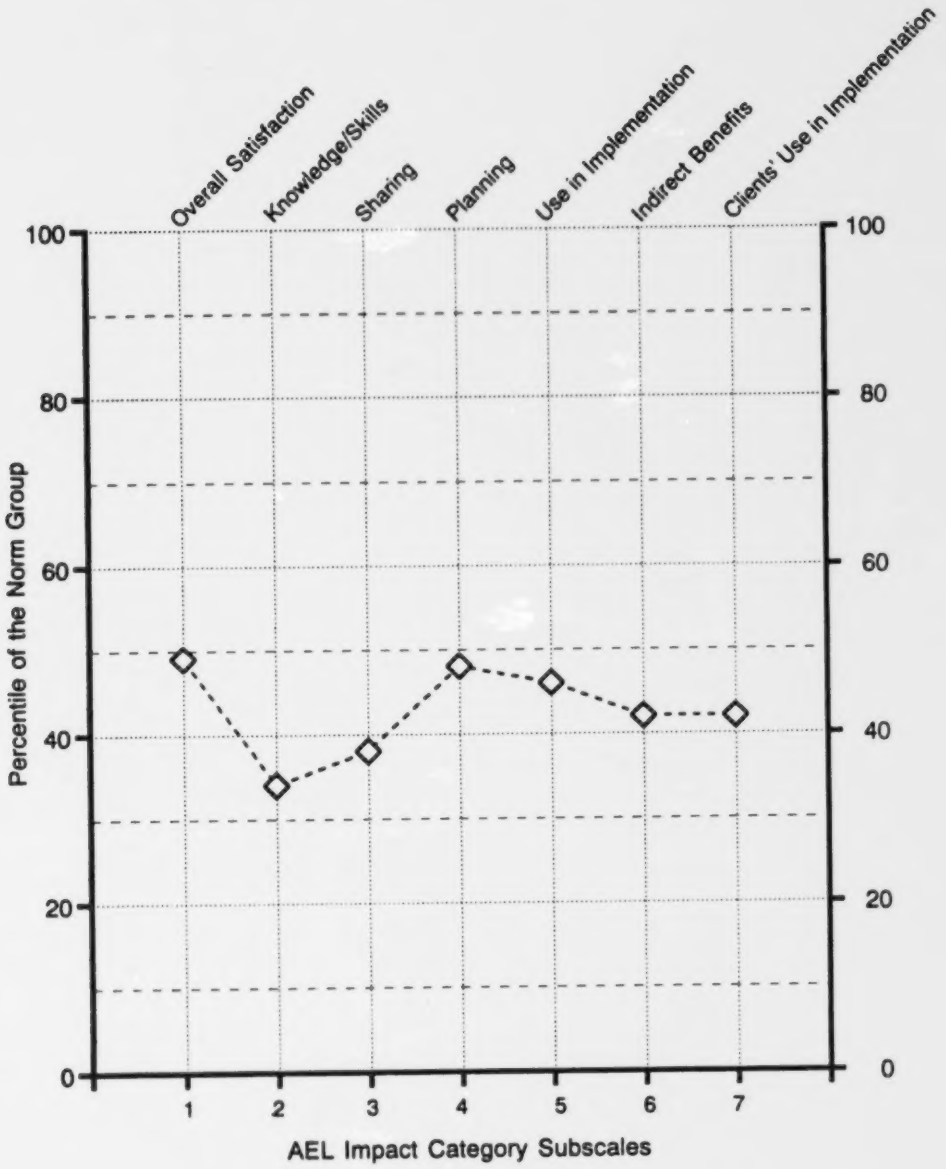

Figure 8. Profile of Means Across the AEL Impact Category Subscales for College/University Professors

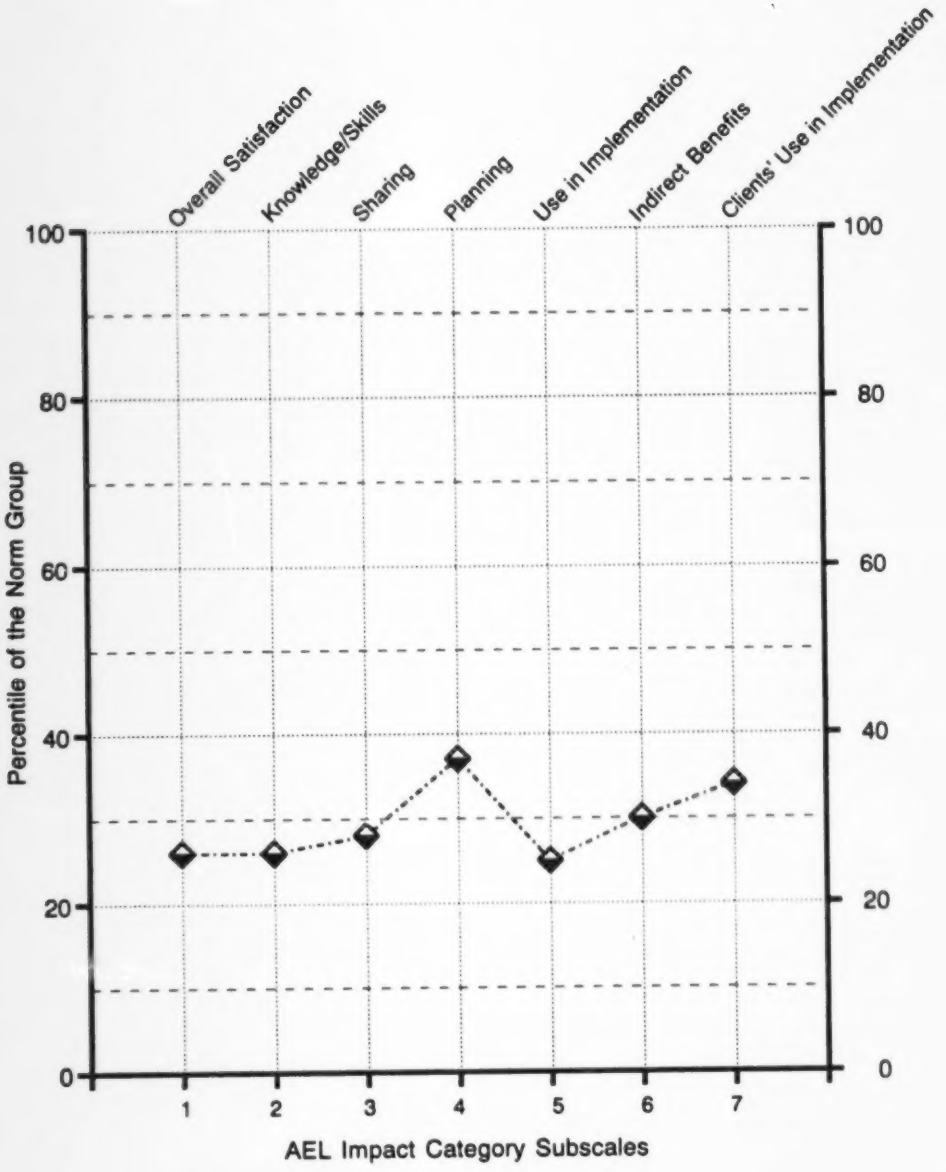

Figure 9. Profile of Means Across the AEL Impact Category Subscales for Higher Education Administrators

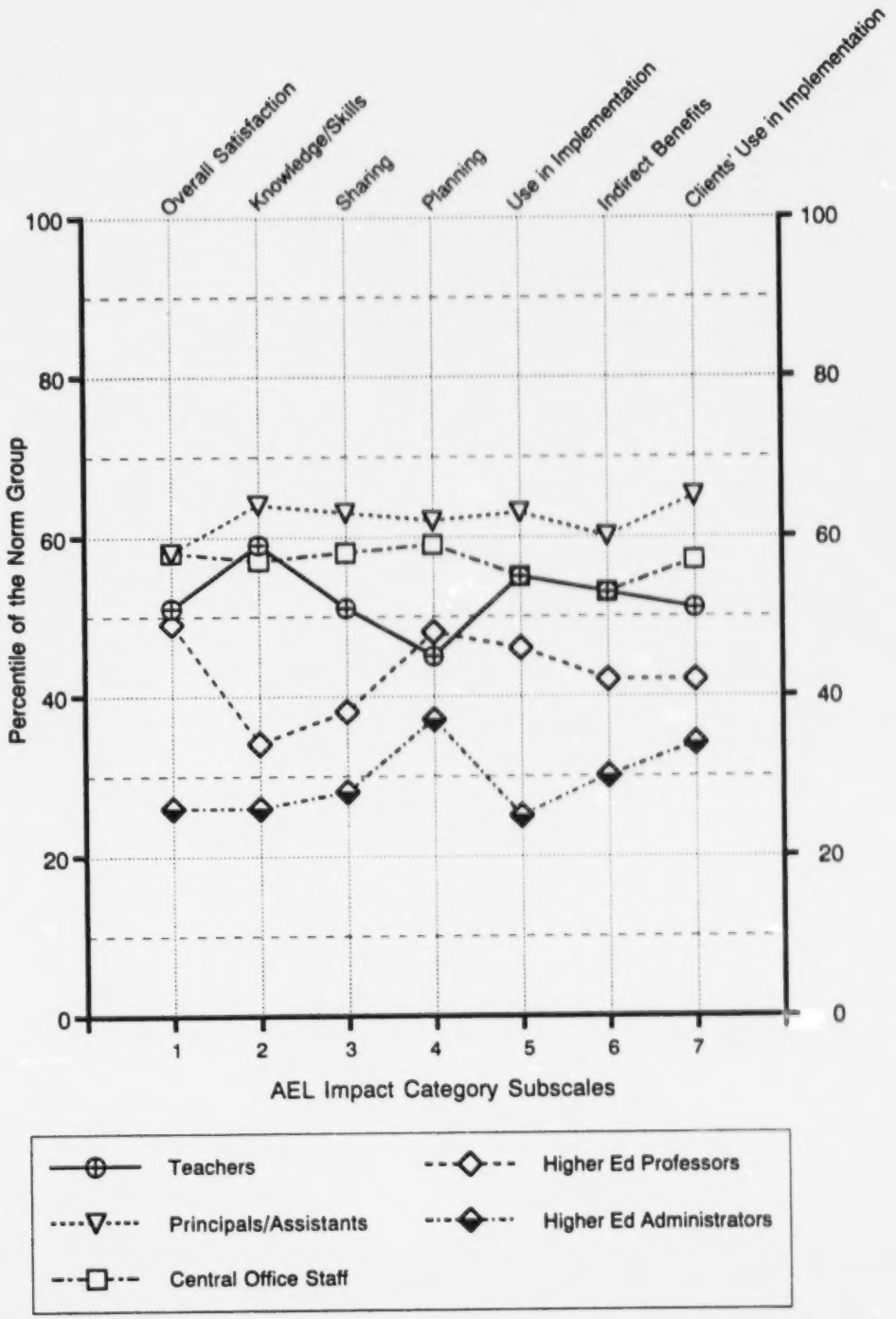

Figure 10. Composite Profile of Means Across the AEL Impact Category Subscales for Professional Role Subgroups

The composite profile of Figure 10 shows some striking differences in perceived impact among the professional roles. Principals and assistant principals consistently have the perceptions of most impact and higher education administrators consistently have the perceptions of least impact. These two subgroups were as much as 38 percentile points apart. These differences appeared on S_2 (the knowledge and skills subscale) and S_5 (the use in implementation subscale).

The reliability of the 35 items measuring impact and the seven impact category subscales has been demonstrated conclusively. The items were developed through a process that provided face validity. So assuming the validity of the subscales, the norming study provides empirical results indicative of the extent and manner that AEL products and services impact the various groups of clients served by AEL. Based on these results, conclusions and recommendations can be made about AEL's impact.

CONCLUSIONS AND RECOMMENDATIONS

The results of the impact study showed that the various client groups are impacted differently across the seven impact categories. Overall, the profiles of the subscale scores, for both employer and professional role, reflect AEL's emphasis on delivering programs to elementary and secondary schools. Profiles indicate that impact will occur where effort is expended. The norming process proved valuable in this respect. One conclusion, not dependent on the norming process, but one that should be emphasized, is the magnitude of AEL's impact through its products and services. This impact is very substantial as evidenced by the positioning of means on the subscales.

The relatively high positioning of the principals on the subscales may be due to a combination of factors, but two likely factors come to mind:

(1) AEL's programs and projects are such that many involve principals as one of the participants.

(2) Principals are in a somewhat unique position as conduits for many AEL-sponsored activities, projects, etc.

Generally, as facilitators or conduits, principals would feel involvement in sharing, implementation, planning, and receiving indirect benefits. The involvement would generate a feeling of gaining knowledge and skills, and correspondingly a greater feeling of overall satisfaction. Teachers, on the other hand, also would have a feeling of knowledge and skills gained, but would not feel as strongly impacted by sharing and planning, or even implementation. Central office staff perceive themselves as being impacted through planning and sharing and slightly less through implementation. Also, they were high on secondary clients' use in implementation, most likely

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because of their leadership positions in the school systems. They see the results of their efforts transferred to teachers and other professionals in the school systems.

The fact that both professors and college and university administrators were low on gaining knowledge and skills is not surprising. Undoubtedly, they perceive other sources in addition to AEL as providing knowledge and, to the extent that it occurs, skills. University personnel have direct access to numerous retrieval systems, etc., through the university library and these sources address extensively new developments based on research. Most educators have access to such sources, but not as readily as those in universities.

Another factor that may be operating is that personnel in colleges and universities are impacted by other forces that take precedence over the types of activities promoted by AEL. There are separate "agendas" in colleges and universities that are not as compatible with AEL activities as the needs of the elementary and secondary schools. For example, collaboration with elementary and secondary schools is not frowned upon in colleges and universities, but it is not one that is particularly favored in the rewards system. Scholarly publishing generally has a much higher priority. Also, implementing innovative approaches to teaching is more difficult at the college level than in elementary and secondary schools.

However, it should not be concluded that those in colleges and universities are being ignored. Indeed, one AEL program, Colleges and Schools, directly addresses the needs of college and university personnel; and many of the other programs involve professors and higher education administrators, or at least touch upon some of their activities.

State education agency personnel had profiles similar to principals/assistant principals and central office staff in local education agencies. These groups were consistently high across the

subscales, but especially so in planning and clients' use in implementation. These patterns reflect AEL's impact upon those in positions of educational leadership. State education agency personnel provide leadership at a different level than those in local education agencies. But it is to AEL's credit that it consistently impacts educational leaders across these levels.

As an overall recommendation, the results and conclusions from the impact study would imply that AEL "should continue doing what it has been doing." Certainly, a major objective of any Regional Educational Laboratory is to impact the activities of educational leaders. AEL has shown its impact upon principals, school system central office staff, and state education agency personnel. In whatever manner AEL's programs impact these leaders, and undoubtedly this is done in many ways across the nine programs, this should be continued.

Certainly, no one would suggest diminishing the impact at the school, local education agency, and state education agency levels. The impact at the college and university level might be increased, if it could be done without decreasing the efforts at the other levels. Possibly, impact at the college and university level is at a maximum given all the conditions and factors that exist. Or possibly, some changes in addressing the needs of college and university personnel might enhance the impact.

The norming process has provided valuable information about the impact of AEL's products and services, as reflected in a substantial client base. The results show the extent of impact in an absolute sense, and they show the different patterns of impact among the subgroups in AEL's client population. The former information is important as measures of impact for the seven specified categories. The latter is important for differentiating impact among the subgroups and may have implications for program emphasis and possible adjustment.

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APPENDIX

AEL SEDCAR Standards Checklist

The *Standards for Educational Data Collection and Reporting* (1991) were used in the development of this (check one):

- ☐ Study group report
- ☐ Field test report
- ☐ Minigrant final report
- ☐ Implementation report
- ☐ Research report
- ☒ Impact study report
- ☐ Other _____

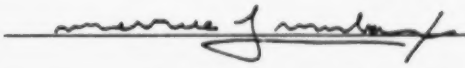
The SEDCAR Standards were consulted and used as indicated in the table below (check or mark as appropriate):

SEDCAR Standard Number and Descriptor	The Standard was deemed applicable; and, to the extent feasible, was taken into account.*	The Standard was deemed applicable; but could not be taken into account.	The Standard was not deemed applicable.	Exception was taken to the Standard.
1.1 Creating an Infrastructure to Manage Data Collection Activities			XXXX (Secondary Analysis)	
1.2 Justifying Data Collection Activities			XXXX (Secondary Analysis)	
1.3 Fostering Commitment of all Participants			XXXX (Secondary Analysis)	
1.4 Creating an Appropriate Management Process	XXXX			
2.1 Formulating and Refining Study Questions	XXXX			
2.2 Choosing the Data Collection Methods			XXXX(Secondary Analysis)	
2.3 Developing a Sampling Plan			XXXX (Secondary Analysis)	
2.4 Assessing the Value of Obtainable Data	XXXX			
2.5 Transforming Study Question Concepts into Measures	XXXX			
2.6 Designing the Data Collection Instrument			XXXX (Secondary Analysis)	
2.7 Minimizing Total Study Error (Sampling and Nonsampling)			XXXX (Secondary Analysis)	
2.8 Reviewing and Pretesting Data Collection Instruments, Forms, and Procedures			XXXX (Secondary Analysis)	
2.9 Preparing a Written Design	XXXX			
3.1 Preparing for Data Collection			XXXX (Secondary Analysis)	
3.2 Selecting and Training Data Collection Staff			XXXX	
3.3 Ethical Treatment of Data Providers	XXXX			
3.4 Minimizing Burden and Nonresponse			XXXX (Secondary Analysis)	
3.5 Implementing Data Collection Quality Control Procedures	XXXX			

*Four column headings from Evaluation *Standards*.

SEDCAR Standard Number and Descriptor	The Standard was deemed applicable; and, to the extent feasible, was taken into account.*	The Standard was deemed applicable; but could not be taken into account.	The Standard was not deemed applicable.	Exception was taken to the Standard.
3.6 Documenting Data Collections	XXXX			
4.1 Planning Systems Requirements	XXXX			
4.2 Designing Data Processing Systems	XXXX			
4.3 Developing Data Processing Systems	XXXX			
4.4 Testing Data Processing Systems			XXXX (Used Standard Software)	
4.5 Planning for Data Preparation	XXXX			
4.6 Preparing Data for Processing and Analysis	XXXX			
4.7 Maintaining Programs and Data Files	XXXX			
4.8 Documenting Data Processing Activities	XXXX			
4.9 Evaluating Data Processing Systems	XXXX			
5.1 Preparing an Analysis Plan	XXXX			
5.2 Developing Analysis Variables	XXXX			
5.3 Applying Appropriate Weights			XXXX	
5.4 Estimating Sampling and Nonsampling Errors			XXXX	
5.5 Determining Statistical Significance			XXXX	
6.1 Presenting Findings	XXXX			
6.2 Reviewing the Report	XXXX			
6.3 Releasing Data	XXXX			
6.4 Disseminating Data	XXXX			
6.5 Preparing Documentation and Technical Reports	XXXX			

Name: Merrill L. Meehan (typed) Date: June 27, 1995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